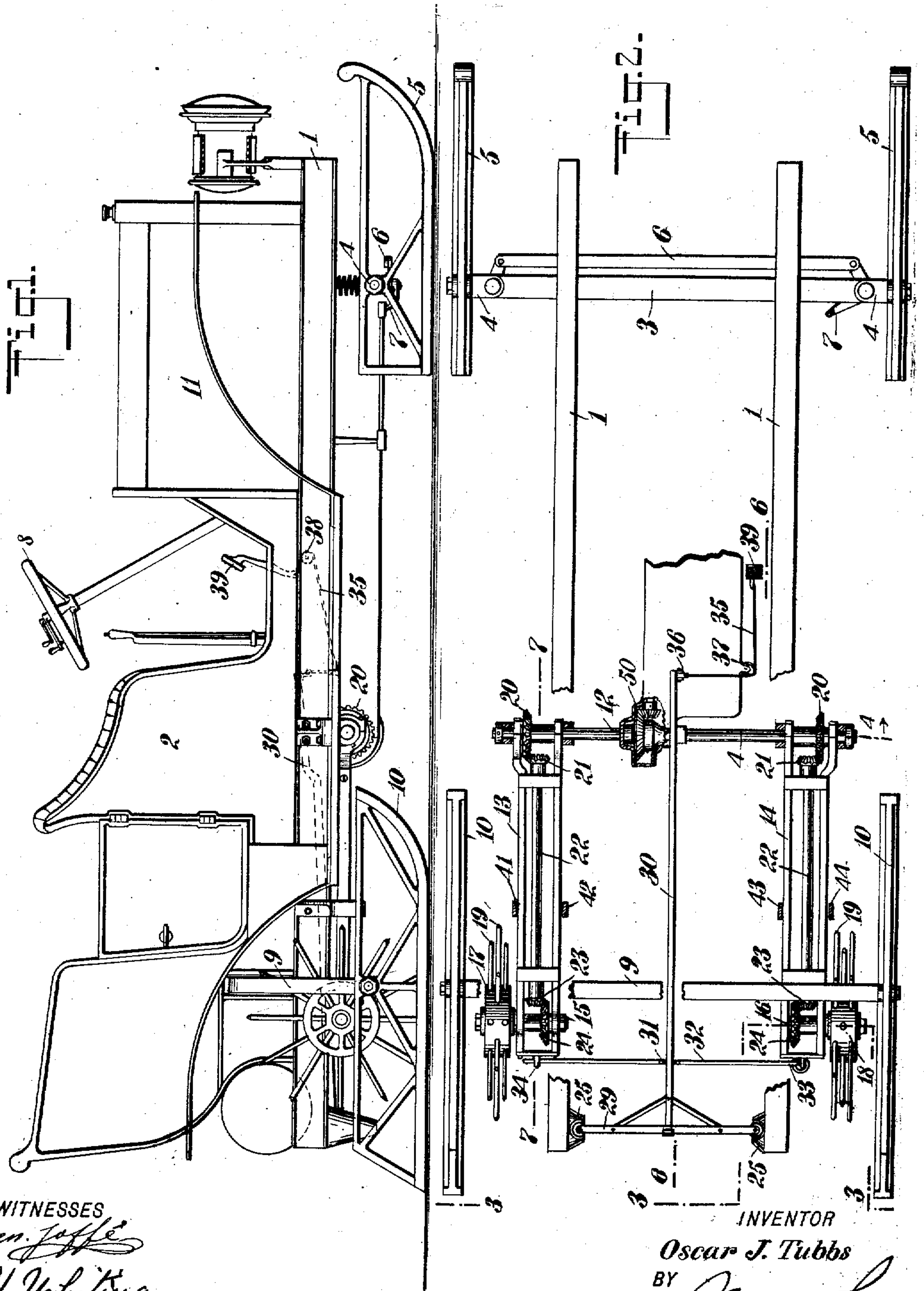


O. J. TUBBS.
 AUTO-SLEIGH.
 APPLICATION FILED AUG. 30, 1909.

962,272.

Patented June 21, 1910.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

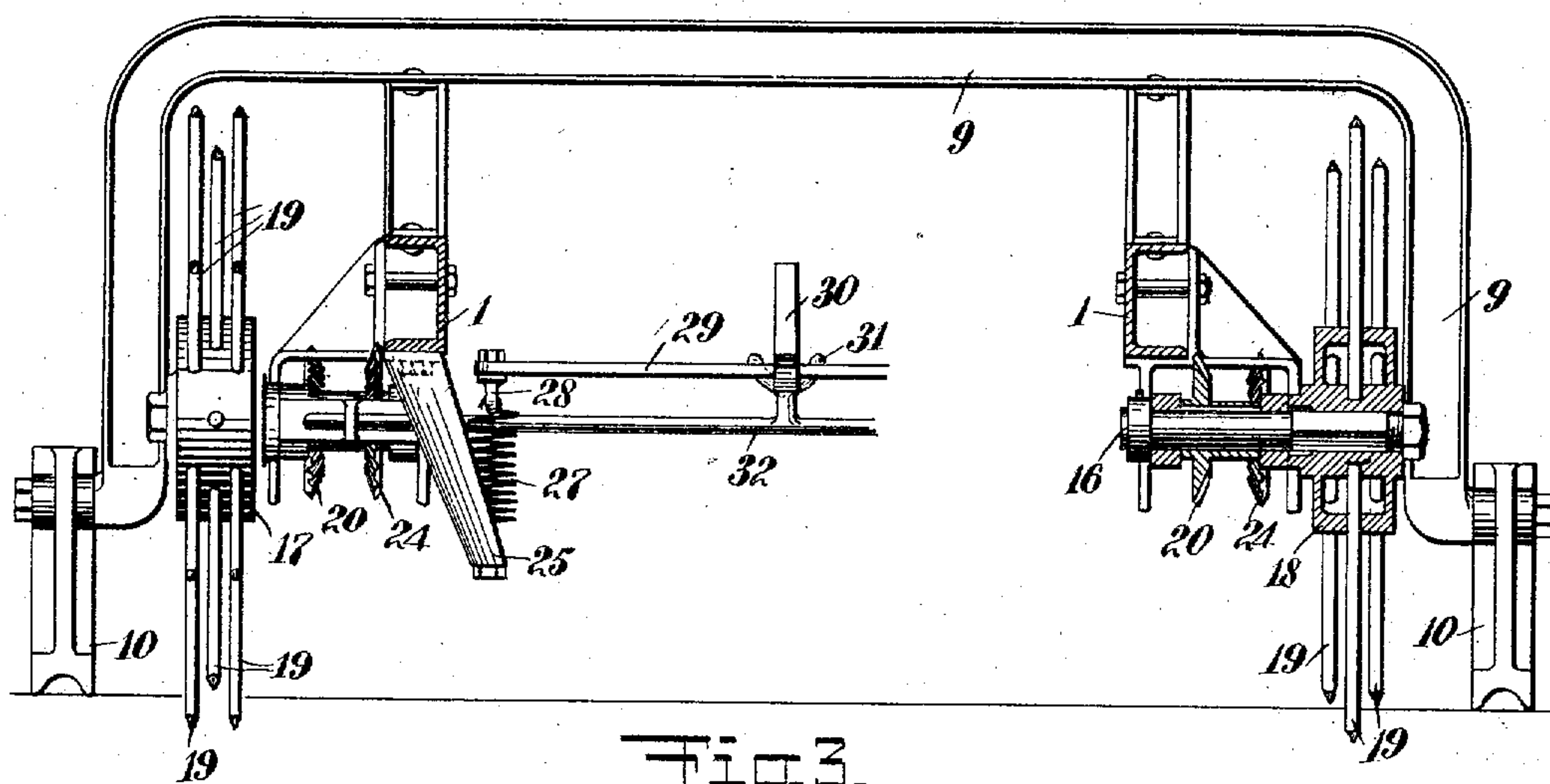


Fig. 3.

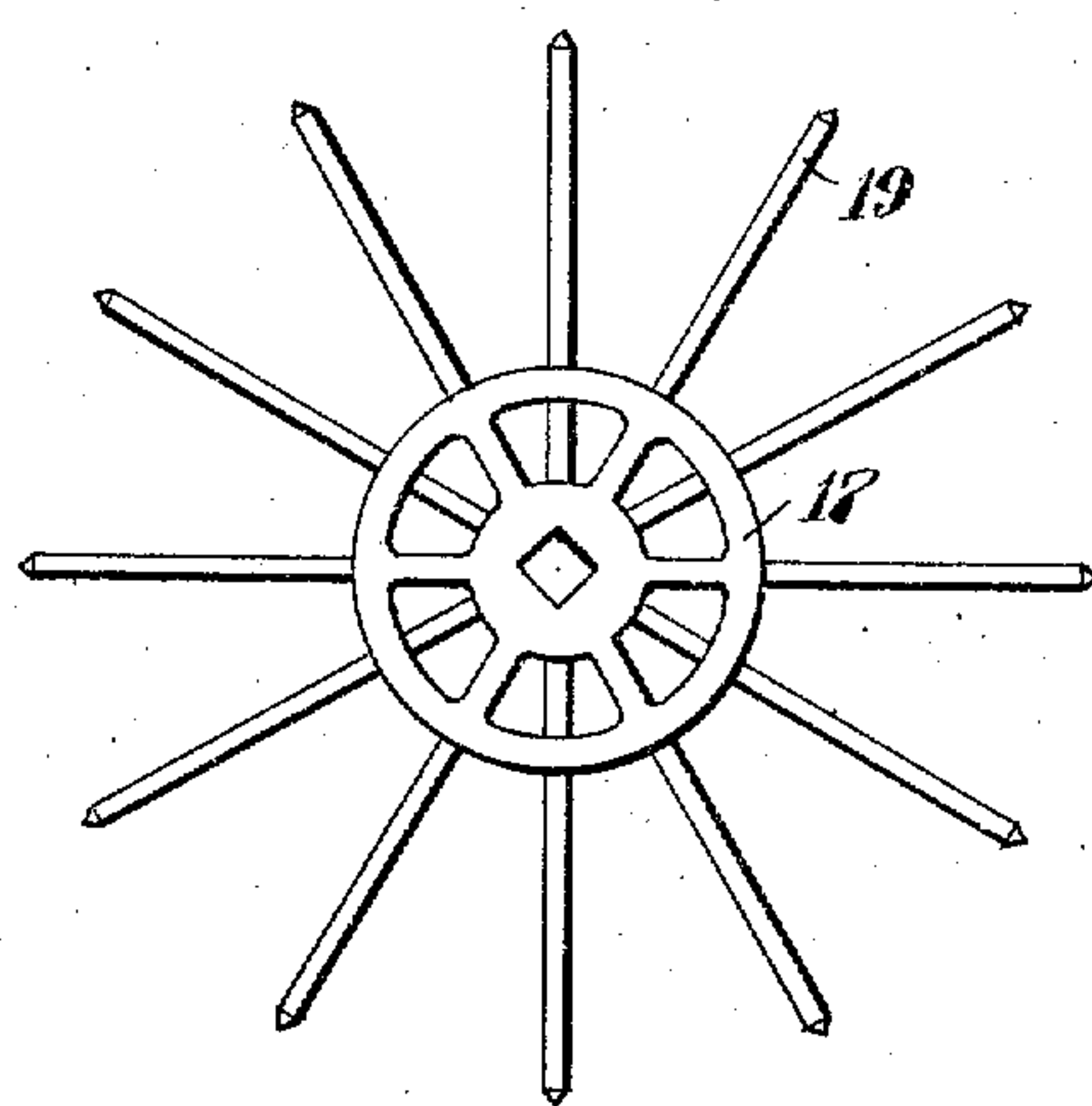


Fig. 5.

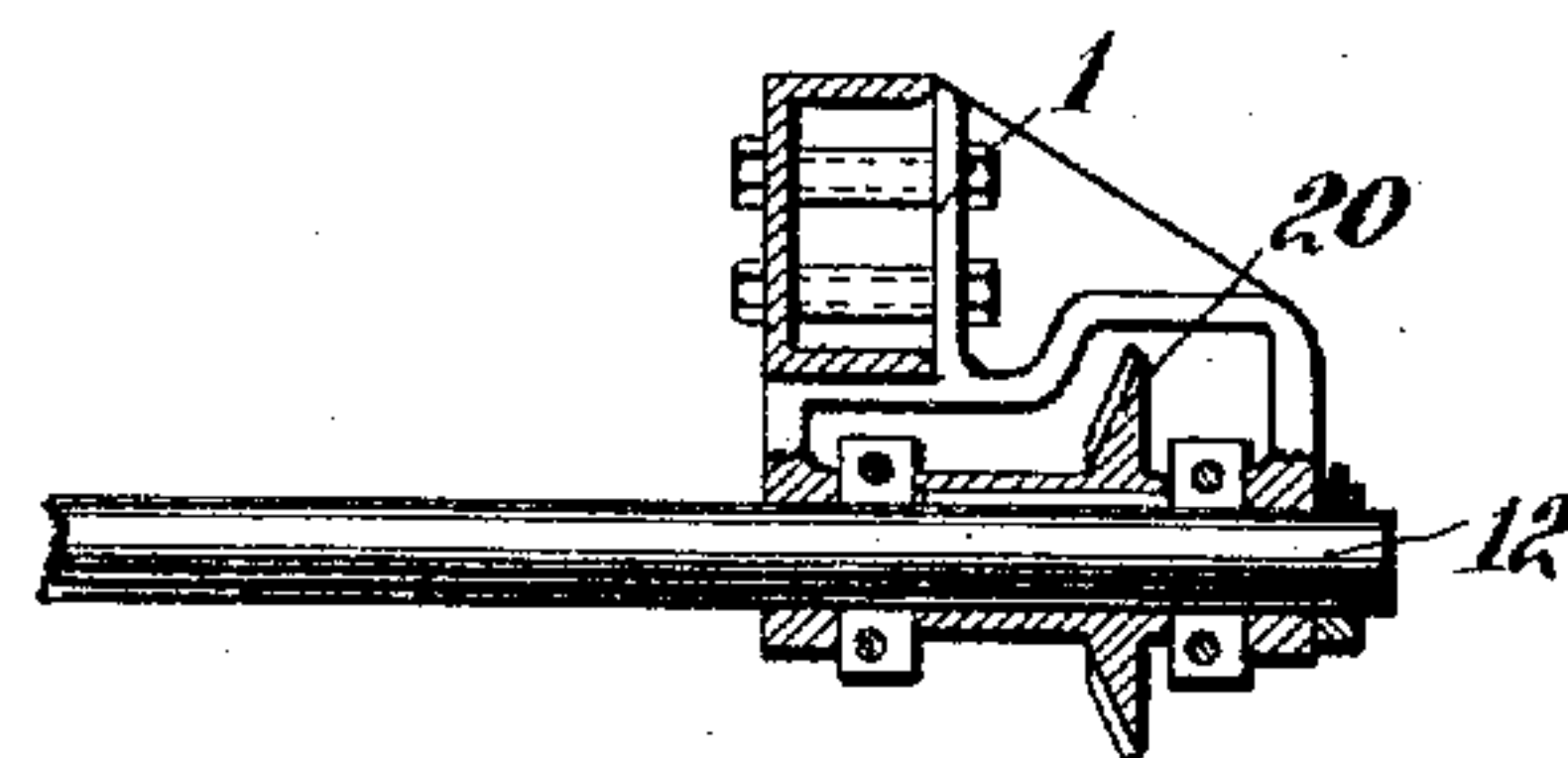


Fig. 4.

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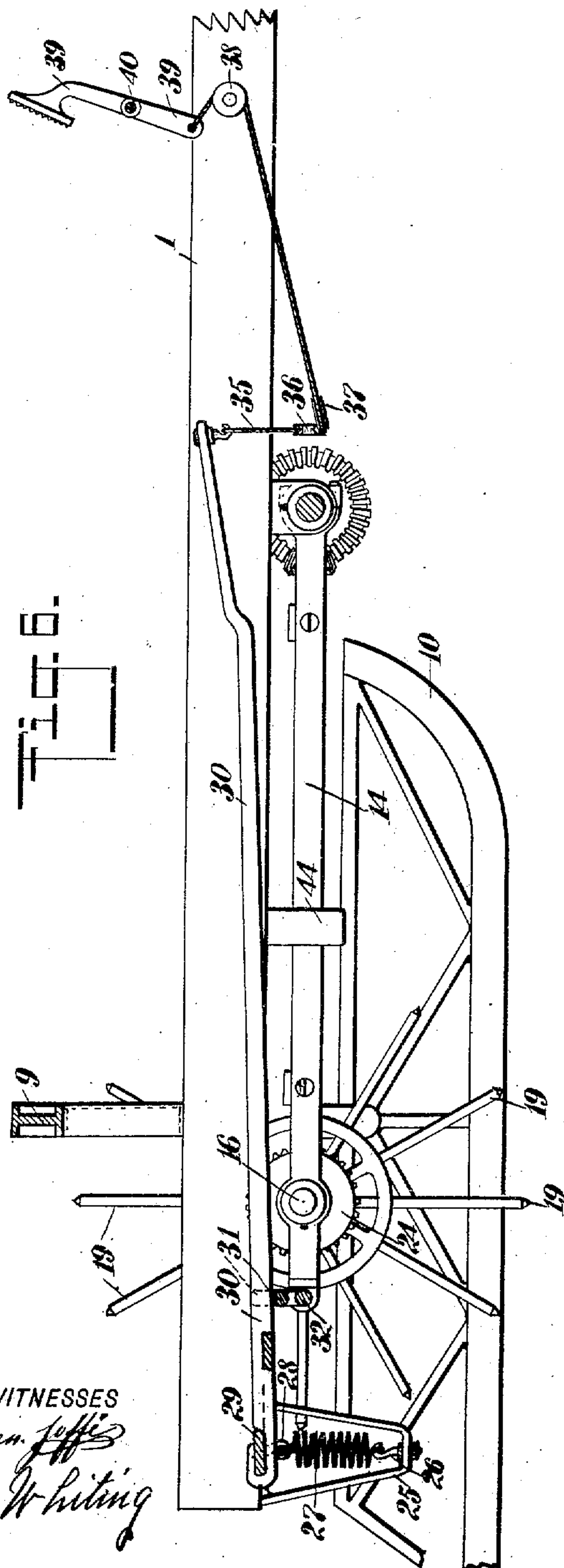
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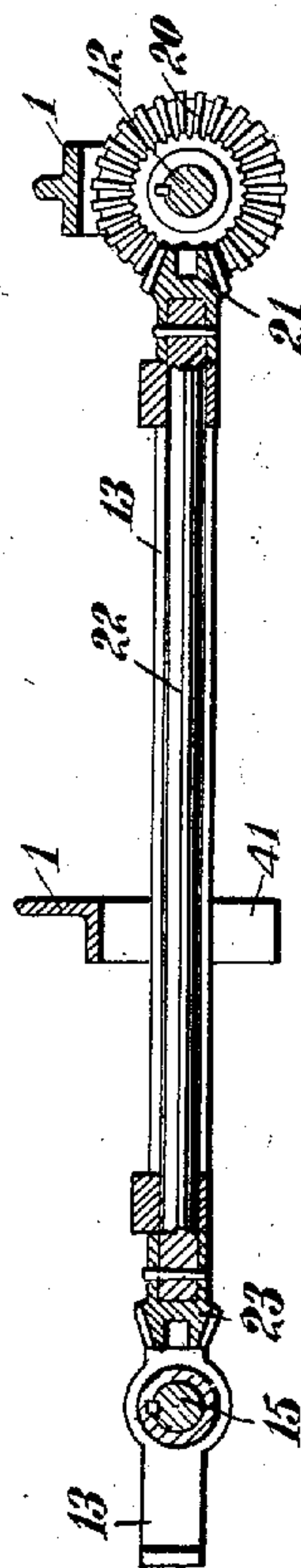
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3 SHEETS—SHEET 3.



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Fig. 7



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UNITED STATES PATENT OFFICE.

OSCAR JOHN TUBBS, OF WATERVILLE, MAINE.

AUTO-SLEIGH.

962,272.

Specification of Letters Patent. Patented June 21, 1910.

Application filed August 30, 1909. Serial No. 515,225.

To all whom it may concern:

Be it known that I, OSCAR J. TUBBS, a citizen of the United States, and a resident of Waterville, in the county of Kennebec and State of Maine, have invented a new and Improved Auto-Sleigh, of which the following is a full, clear, and exact description.

This invention relates to a new and improved sleigh of the automobile or self-propelled type.

An object of the invention is to provide a device which will be simple in construction, inexpensive to manufacture, strong, durable and efficient in its operation.

A further object of the invention is to provide a device having a plurality of propelling means so arranged as to allow relative movement over a rough roadway, and also provided with simple means for yieldingly holding the propelling wheels to their work.

These and further objects, together with the construction and combination of parts, will be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a side view in elevation; Fig. 2 is a plan view, with parts broken away to show the underlying structure; Fig. 3 is a vertical cross section on the line 3—3 in Fig. 2; Fig. 4 is a vertical transverse section on the line 4—4 in Fig. 2; Fig. 5 is a side view in elevation of one of the propelling wheels; Fig. 6 is a vertical longitudinal section on the line 6—6 in Fig. 2; and Fig. 7 is a vertical longitudinal section on the line 7—7 in Fig. 2.

Referring more particularly to the separate parts of the device, 1 indicates a framework, which supports in any suitable manner a body 2 of any well known form. The front of the framework 1 is supported in any suitable manner by means of a front cross bar 3, to the ends of which are pivotally secured axles 4, on which are pivoted the front runners 5, which may be of any suitable form and material. Each of the axles 4 forms one arm of a bell crank lever, the other arms of which are pivotally connected by a rod 6. The rod 6 is operated through another arm 7, which is connected in any suitable manner to a steering wheel 8.

The rear end of the frame 1 is supported in any suitable manner by a rear axle 9, which is preferably bent in its mold in a U-shaped form, to allow room for the movement of the propelling wheels to be described herein after.

To the extremities of the axle 9 are pivotally secured in any well known manner the rear runners 10. The motive means for the vehicle is obtained from any suitable motor, such as a gasoline motor, indicated at 11, which transmits its power by any suitable connecting gear, to a shaft 12 rotatably supported on the frame 1 in any suitable manner intermediate the ends thereof. The shaft 12 runs transversely of the framework, and forms the pivot point of hangers 13 and 14, which are in the form of parallel bars suitably braced together. Pivotally secured at the rear end of the hangers 13 and 14, there are provided suitable stub shafts 15 and 16, to which are secured in any well known manner the propelling wheels 17 and 18. These propelling wheels 17 and 18 may be of any suitable form, but are preferably formed of metal rings having perforations suitably arranged in the periphery thereof, in which are adapted to be removably secured tractor teeth 19. The arrangement of these teeth may be varied according to the kind of going that the sleigh has to encounter. The propelling wheels 17 and 18 are driven from the propelling shaft 12 by means of a suitable train of gears, which consists of bevel gears 20 suitably secured to the shaft 12, which mesh with bevel pinions 21 secured on the longitudinal shafts 22, that have bevel pinions 23 secured to their opposite ends in any well known manner, which in turn mesh with bevel gears 24 on the stub shafts 15 and 16.

The shaft 12 is preferably formed in two parts, which are driven by differential gearing, indicated at 50, so that the propelling wheels 17 and 18 may rotate independent of each other, in order to take turns or curves in the road properly, and in order that one or the other of the propelling wheels may be thrown out of commission if desired.

The hangers 13 and 14 permit the propelling wheels 17 and 18 to be swung up and down, so as to force them gently or strongly into the underlying roadbed. The means of forcing the propelling wheels 17 and 18 into the roadbed will now be described.

Suspended from the rear end of the frame 1, there are provided a pair of V-shaped brackets 25. Extending upward from the inner surface of the bottom of these brackets 5 25, there are provided suitable hooks 26, to which are secured the lower ends of spiral tension springs 27. The upper ends of these spiral springs 27 are secured to suitable hooks 28 on the ends of a cross bar 29. The 10 cross bar 29 is secured in any well known manner to the end of a lever 30, which extends to the forward end of the frame, and rests intermediate its ends on a curved lock 31, which is secured in any well known man- 15 ner to a transverse rod 32. The rod 32 has a loop 33 formed at one end, which engages with a similar loop or ring on the end of the hanger 14. The opposite end of the rod 32 extends through a loop 34 on the hanger 20 13. By this means, the lever 30 is adapted to force the hangers 13 and 14 downwardly, thereby causing the propelling wheels to dig into the ground. The particular arrangement of the rod 32 with the loops 33 and 34 is such that the hangers 13 and 14 25 may move independently of each other, so as to allow for unevenness in the ground over which the sleigh passes.

The lever 30 is operated by a suitable 30 flexible connection 35, which is secured in any well-known manner to the forward end of the lever, and passes over suitable guide pulleys 36, 37 and 38 to the lower end of a foot lever 39, which is pivoted in any well- 35 known manner at 40. The foot lever 39 is located adjacent to the front seat in such a position that the operator may readily operate the same. It will thus be seen that the lever 30, by reason of its connection with 40 the springs 27, holds the propelling wheels 17 and 18 in yielding contact with the roadway, thereby permitting the wheels to spring up when they come in contact with an obstruction in the roadway.

45 In order to prevent the hangers 13 and 14 from wobbling from side to side, and for the purpose of guiding them, there are provided suitable guides 41, 42, 43 and 44, secured to the frame 1 in any suitable manner, 50 and extending downwardly on each side of the hangers 13 and 14.

The operation of the device will be readily understood from the above description. When the sleigh is going over smooth ground 55 coated thickly with ice, a slight pressure is put on the foot lever 39, thereby causing the propelling wheels 18 and 19 to tend to jab into the roadway very slightly. However, if soft snow with a slight crust on the top is 60 reached, the pressure on the foot lever 39 must be increased perceptibly, in order to force the sleigh along the roadway. In case a bare stretch of ground is encountered, the pressure on the foot lever 39 may be in- 65 creased sufficiently to raise the rear runners

10 entirely off the ground, supporting the majority of the weight of the sleigh on the propelling wheels 17 and 18. If desired in the running of the sleigh, one of the wheels may be hung up by a suitable hook attached 70 to the framework and adapted to engage the hangers, thereby throwing it out of operation and permitting the sleigh to be propelled by one wheel. Any other suitable driving connection may be used between the 75 shaft 12 and the propelling wheels 17 and 18, such as a chain-and-sprocket arrangement.

Having thus described my invention, I claim as new and desire to secure by Letters 80 Patent:—

1. In an auto-sleigh, the combination with a frame, of a shaft rotatably supported on said frame, a pair of hangers pivotally supported on said shaft, propelling wheels on 85 said hangers, a cross rod loosely connecting said hangers, a lever engaging said cross rod adapted to force said propelling wheels into engagement with the roadway, and means for operating said lever. 90

2. In an auto-sleigh, the combination with a frame, of a shaft rotatably supported in said frame, hangers pivotally connected to said shaft, propelling wheels connected to said hangers, a cross rod loosely connecting 95 said hangers, a lever adapted to operate said cross rod to force said propelling wheels into engagement with the roadway, means for resiliently connecting said lever to the frame, and means for operating said lever. 100

3. In an auto-sleigh, the combination with a frame, of a shaft rotatably supported on said frame, hangers pivotally connected to said shaft propelling wheels rotatably supported on said hangers, a cross rod loosely 105 connecting said hangers together, a lever adapted to operate said cross rod, to force said propelling wheels into engagement with the roadway, brackets supported on said frame, a cross bar secured to said lever, and 110 tension springs connecting said cross bar with said brackets.

4. In an auto-sleigh, the combination with a frame, of a shaft rotatably supported in said frame, hangers pivotally connected to 115 said shaft, a cross rod adjustably connecting said hangers together, propelling wheels rotatably supported on said hangers, means for rotating said propelling wheels, a lever engaging said cross rod and adapted to force 120 said propelling wheels into engagement with the roadway, means for operating said lever, a cross bar connected to said lever, brackets connected to said frame, and spring connections between said brackets and said cross 125 bar.

5. In an auto-sleigh, the combination with a frame, of a body portion on said frame, a shaft rotatably supported on said frame, hangers pivotally connected to said shaft, 130

propelling wheels rotatably supported in said hangers, driving connections between said shaft and said propelling wheels, a loose connection between said hangers, a lever
5 adapted to operate said loose connection, to force said propelling wheels into engagement with the roadway, a bar connected to said lever, brackets connected to said frame, tension springs connecting said brackets with
10 said bar, and a foot lever for operating said lever.

6. In an auto-sleigh, the combination with a frame, of a body supported on said frame, runners pivotally connected to said frame, a
15 shaft rotatably supported on said frame, hangers pivotally connected to said shaft, propelling wheels rotatably supported on said hangers, bevel gears on said shaft, longitudinal shafts having driving connection
20 with said bevel gears, driving connections between said longitudinal shaft and said propelling wheels, a rod loosely connecting said hangers together, a lever adapted to

operate said rod, to force said propelling wheels into engagement with the roadway, a
25 cross bar on said lever, brackets on said frame, tension springs connecting said brackets with said cross bar, a foot lever for operating said lever, and a flexible connection between said lever and said foot lever. 30

7. In an auto-sleigh, the combination with a body portion, of a shaft on said body portion, comprising two members, differential gearing for driving said members, a plural-
35 ity of hangers independently pivoted to said shaft, a propelling wheel rotatably secured on each of said hangers, and driving connections between said members and said wheels.

In testimony whereof I have signed my
40 name to this specification in the presence of two subscribing witnesses.

OSCAR JOHN TUBBS.

Witnesses:

F. W. MANSON,

ROBERT F. PAYSON.